upper and lower surfaces of said non-imaging optical waveguide are planar reflective surfaces.

REMARKS

Claims 1-54 are pending in this application. Claims 32-47 have been withdrawn from consideration. Claims 27-31 and 48-50 have been allowed, and claims 2-5, 9-26, and 51-54 are indicated as allowable.

Section 112 Objection on Indefiniteness. Claims 6-8 were rejected as being indefinite. These claims have been corrected in accordance with the comments provided by the Examiner, and accordingly this objection is believed to be overcome.

Kugimiya. The Examiner rejects claim 1 as anticipated by Kugimiya, U.S. 5,080,940. The Examiner states that: "the Kugimiya reference shows a non-imaging waveguide (with air guiding the light) and the reflective surface capable of directing light around a corner. One side of the mirror can be considered a port and the other side of the mirror can be considered a second port, since a port is only an opening through which something can pass."

Kugimiya is directed to providing an imaging magic mirror device comprising a substrate having a front surface which is mirror finished and a rear surface on which nicked marks are formed, whereby it is possible to read a latent image of the nicked marks on the mirror-finished front surface upon irradiation of light onto the front surface. Kugimiya does not show a waveguide, and the optics which do appear in Kugimiya are not non-imaging in nature, as the phrase is understood by optical designers.

A waveguide, as this term is used in both optics and electrical engineering, is a structure bounded by reflecting surfaces, which confines electromagnetic radiation by reflection at those surfaces. The characterization of Kugimiya's invention as a waveguide "with air guiding the light" is inconsistent with the definition of waveguide that is common in the art. The definition of class terms provided by United States Patent and Trademark Office on its web page provides that "a waveguide is defined as any structure capable of guiding

electromagnetic radiation in a direction parallel to its axis, while substantially confining the radiation to a region within and adjacent to its surfaces." Additionally the same site defines an optical waveguide to be "a waveguide which guides radiation in the visible and near-visible portions of the spectrum by means of total internal reflection." (The relevant URL for these definitions is: http://www.uspto.gov/web/offices/pac/clasdefs/0385.txt).

Moreover, a definition that is readily available to non-specialists, which is provided in the tenth edition of the Merriam Webster's Collegiate Dictionary, defines a waveguide as "a device (as a duct, coaxial cable, or glass fiber) designed to confine and direct the propagation of electromagnetic waves (as light); esp: a metal tube for channeling ultrahigh-frequency waves." Please note that each of these sources defines a waveguide as a device that is bounded by surfaces which reflect electromagnetic waves. The air in the Kugimiya device does not confine and reflect electromagnetic waves, it is simply a medium in which those waves propagate.

Additionally, please note that the Kugimiya invention is in many places described as an imaging device. For example, in column 2 lines 52-57, it states:

> "When light is irradiated onto the mirror surface body, despite the fact that nothing is apparently seen on the front surface, the corresponding latent images can be reflected as normal images on a projection screen, so that detection of the marks on the mirror surface body can be easily made."

In contrast, Fein in the present invention utilizes non-imaging optical constructions, whose purpose is the efficient transfer of optical power from one place to another, with minimal loss in the concentration of that power, and with no need to retain image qualities. On the other hand, the Kugimiya device does a poor job of maintaining power concentration, as it allows light from a small pinhole 12 to diverge to cover a large area on output plane 14, and imaging qualities are essential to the Kugimiya device.

It is also useful to note that the Kugimiya device is rather similar to the prior art devices from which the present invention strives to distinguish itself from. For example, on page 1 of the present patent application, at lines 32-37, Fein describes such prior art:

> "To turn a sharp corner and yet prevent substantial failure of TIR, the fiber can be cut and flat mirrors along with other optics can be used to redirect the light from one substantially-straight section of fiber to another substantially-straight section of fiber which is oriented in another direction."

Furthermore, Kugimiya provides no basis for the adoption of the first port for coupling to optical fibers and receiving light with divergence angles of less than 90 degrees from the axis of the optical fiber. Kugimiya provides no such recitation. Thus, not only does Kugimiya not anticipate the invention as claimed, it would not be obvious from Kugimiya to arrive at the present invention.

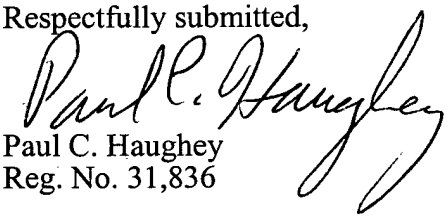
Claims 2-5, 9-26, and 51-54 are dependent upon claim 1, and are believed allowable for the same reasons.

CONCLUSION

In view of the foregoing, Applicants believe all claims now pending in this Application are in condition for allowance. The issuance of a formal Notice of Allowance at an early date is respectfully requested.

If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at (650) 326-2400.

Respectfully submitted,



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